Driving Systems Engineering into Programs

NDIA Systems Engineering Division Meeting
April 12, 2005

Mark D. Schaeffer

Principal Deputy Director, Defense Systems
Director, Systems Engineering

Office of the Under Secretary of Defense (AT&L)

What We Have Done To Revitalize System Engineering

- Issued Department-wide SE policy
- Issued guidance on SE, T&E, and Systems Engineering Plans
- Established SE Forum to ensure senior-level focus within DoD
- Instituted system-level assessments in support of DAB, OIPT, DAES, and ad hoc reviews
- Integrated DT&E with SE policy and assessment functions—focused on effective, early engagement of both
- Instituting a renewed emphasis on modeling and simulation
- Working with Defense Acquisition University to revise curricula
- Leveraging close working relationships with industry and academia

Necessary but not sufficient!

Driving SE Back Into Programs
What are we seeing in PSRs and SEPs?

- Incomplete discussion of program requirements
  - Missing categories such as statutory, regulatory, or certifications
- Minimal discussion of program IPTs
  - Need to identify technical authority, lead systems engineer, and key stakeholders
  - Only addresses part of organization, such as prime; no mention of government, subcontractors, or suppliers
- Incomplete technical baseline approach
  - How does the program go from CDD to product—traceability?
  - Linkage to EVM—not able to measure technical maturity via baselines
- Incomplete discussion of technical reviews
  - How many, for what (should tie to baselines and systems/subsystems/ configuration items), and by whom (should tie to staffing)?
  - Actual entry criteria
- Integration of SEP sections
  - Linkage with IMP, IMS, logistics, and testing
  - Contracting for SE

PSRs	SEPs
10	28

Driving SE Back Into Programs
Importance and Criticality of the SEP

- The program's SEP provides insight into every aspect of a program's technical plan, focusing on:
  - What are all the program requirements?
  - Who has responsibility and authority for managing technical issues and what is staffing and organization to support?
  - How will the technical baseline be managed and controlled?
  - What is the technical review process?
  - How is that technical effort linked to overall management of program?
- A living document with use, application, and updates clearly evident

THE SEP is the primary mechanism for SE revitalization by reaching every aspect of a program

Are We on the Right Track?

- Study Findings
  - Inadequate understanding of requirements
  - Lack of SE discipline, authority, and resources
  - Lack of technical planning and oversight
  - Stovepipe developments with late integration
  - Lack of subject matter expertise at integration level
- Programs/SEPs
  - Incomplete discussion of program requirements
  - Minimal discussion of technical authority and IPTs
  - Incomplete technical baseline approach
  - Incomplete discussion of technical reviews
  - Integration of SEP sections

Strong correlation between initial findings and Program Support and SEP findings

Driving SE Back Into Programs Affecting ACAT IC, II, III Programs

- OSD cannot do everything…NOR should we
- OSD's fundamental role is to set policy, provide relevant and effective education and training, and foster communication throughout the community
- Service and agencies must take ownership of the institutionalization of SE
- OSD will sponsor a PEO/PM Summit in May / June to:
  - Dialogue directly with PEOs, PMs, and technical authorities
  - Reiterate the tenants of SE Revitalization
  - Take aboard "feedback" from PEOs, PMs, and technical authorities
  - Conduct 1-day workshop to "work the details"

What You Can Do

- Examine your operating divisions' systems engineering organization, policies, and practices
- Help develop the "community of practice"
- Ensure program level plans and practices reflect corporate-level commitments (walk the walk, not just talk the talk!!)
- Design programs to optimally contribute to Systems-of-Systems capability
- Support systems engineering education and training at all levels – internally and externally
- Participate in and engage in assessments … with an open mind
- Ask yourself, "how do I know we're doing things right, top to bottom?"
- And more …